

while there was an easily identified central mass of neoplasm, small fingers with diameters of five to ten cells were frequently identified, extending submucosally into surrounding and adjacent tissues for distances of up to 3 cm. Using MOHS as a technique of examining margins, tumor was found present 1 cm away from clinically evident disease in two thirds of the patients. Once identified, these small fingers or dendrites of tumor were easily traced and resected with additional directed excisions and microscopic examinations. The implications of this work are that by using this technique we should be able to better control local disease and therefore improve cure rates for head and neck epidermoid cancers. Additionally, there is implication that this technique may be useful in improving the local control rate for all neoplasms in which local control is a factor in morbidity and mortality.

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## Computed Tomography in Head and Neck Surgery

DURING THE PAST several years computed tomographic (CT) imaging of the head and neck has proved to be of great value to head and neck surgeons. Deep neck infections can be more accurately evaluated by delineating the presence of an abscess, its location and involvement of important surrounding structures. This helps a clinician to more accurately plan the surgical approach. CT may eliminate the need for an operation when jugular vein thrombosis, inflammatory lymphadenopathy or cellulitis is found.

When a mass lesion is present, CT may not only confirm the diagnosis but define deep tissue extent, facilitating surgical removal. It can also change the surgical approach by differentiating a cystic mass originating in the neck such as a branchial cleft cyst versus a cystic mass originating in the parotid gland. In some cases, this may be difficult to determine by clinical examination alone. It is considered to be the best single imaging examination in a patient with a lateral neck mass that is suggestive of branchial cleft cyst. If the mass is within the parotid gland, extension of the tumor into the deep lobe or into the parapharyngeal space can be found. This information may be crucial when selecting a surgical route.

Additional help in assessing benign disease may be obtained by differentiating congenital lesions such as cystic hygroma from branchial cleft cysts, paramedian thyroglossal duct cysts or an external laryngocele. Other deep neck neoplasms such as parapharyngeal space adenomas of salivary gland origin, benign neural tumors or vascular paragangliomas can also be diagnosed preoperatively because of their location, density or other specific characteristics.

In the initial evaluation of malignant disease, staging and treatment of the primary tumor and metastatic disease in the neck are aided by assessing the actual extent of the disease and its involvement of important surrounding structures. Follow-up examination of tumor response to therapy, diagnosis of tumor recurrence in the treated neck and the search for an unknown primary are all significantly enhanced by CT. In our

experience, CT has been of particular help in patients who have a large primary tumor and a clinically normal neck. CT imaging has, therefore, become an integral part of the preoperative evaluation in head and neck operations.

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## Endoscopic Sinus Operations

A RADICALLY DIFFERENT approach to the treatment of chronic or recurrent sinusitis has recently been introduced in the United States. The technique is not new, however, having been in use in Europe for ten years. The cornerstone of the theory behind this approach is that in chronic or recurrent sinusitis the problem is the anterior ethmoid sinuses. In patients with chronic or recurrent sinusitis, both diagnostic and therapeutic efforts are directed to this area. In severe cases, routine evaluation will show obvious sinus disease.

In patients with the appropriate history but unimpressive findings, however, further evaluation is indicated. This involves meticulous evaluation of the nasal cavity, especially the middle meatus, with sinus endoscopes, looking for purulent exudate, polyps or other abnormalities. In addition, computed tomographic scanning of the sinus is indicated. This is best done in the coronal plane, with the windows set as they are for lung parenchyma. The key abnormality is mucosal thickening in the anterior ethmoids.

Once disease in the anterior ethmoids is established, therapy is directed to that area. The key concept is a minimalist approach. In the operating room, under local or general anesthesia, an anterior ethmoidectomy is carried out under direct vision using the sinus endoscopes. The ethmoid bulla and infundibulum are opened into the middle meatus. If the remainder of the disease is reversible, nothing further is done. Beyond this point, only irreversibly diseased tissue is removed.

Over the next several weeks, the operative site will heal and the sinuses will re-aerate. During the healing period, frequent cleaning of the operative site is essential to prevent crusting or scarring from impeding drainage.

My experience over the past year validates this concept. A word of caution. Because visualization is so good with the endoscopes, it is easy to go farther than planned. Remember that the eye and the brain are close.

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